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Ahmed 3-39-39-3-13

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): Walid Ahmed et al.
Case: Ahmed 3-39-39-3-13
Serial No.: 09/191,132
Filing Date: November 13, 1998
Group: 2666
Examiner: Shick C. Hom

I hereby certify that this paper is being deposited on this date with the U.S. Postal Service as first class mail addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signature: Laura M. Hamlin Date: August 13, 2003

Title: Addressing Scheme for a Multimedia
Mobile Network

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APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Sir:

Applicants (hereinafter referred to as "Appellants") hereby appeal the final rejection of claims 1, 3, 4, 6, 8, 9, 11-14, 16-18 and 20, of the above referenced application.

REAL PARTY IN INTEREST

The present application is assigned to Lucent Technologies Inc., as evidenced by an assignment recorded January 7, 1999 in the U.S. Patent and Trademark Office at Reel 9698, Frame 0131. The assignee, Lucent Technologies Inc., is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals and interferences.

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STATUS OF CLAIMS

Claims 1, 3-6 and 8-20 are pending in the present application. Claims 5, 10, 15 and 19 are allowed. Claims 1, 3, 4, 6, 8, 9, 11-14, 16-18 and 20 stand rejected under 35 U.S.C. §103(a). Claims 1, 3, 4, 6, 8, 9, 11-14, 16-18 and 20 are appealed.

STATUS OF AMENDMENTS

There have been no amendments filed subsequent to the rejection.

SUMMARY OF INVENTION

The present invention relates to mobile communication systems and, more particularly, to mobility management techniques in such systems that may include multimedia applications in a highly dynamic networking environment (Specification, page 1, lines 13-15). The present invention provides a network architecture, an addressing scheme, and various mobility management methodologies, as well as apparatus for implementing them in a packet-based mobile communications system, which are capable of supporting various voice and data service including, for example, multimedia services (Specification, page 5, lines 5-8).

The addressing scheme of the present invention alleviates a mobile user station from needing to be concerned with the mobility of other mobile user stations within the system. While the overall address of a mobile station may change due to the fact that it may become associated with a different network node, or a mobile station may have more than one address if it is associated with more than one network node, a correspondent mobile station is still able to send and receive packets to and from the initiating mobile station since the identifier of a mobile station remains the same (Specification, page 6, lines 7-14). The present invention is an exemplary packet based wireless communications system in which not only are end user terminals mobile, but in which system access points, referred to hereinafter as network nodes, are also mobile (Specification, page 8, lines 26-28).

By way of example, as recited in claim 1, a method for use in a mobile user station of a packet-based multiaccess communications system may comprise the following steps. First, an address is assigned to be associated with one or more packets of the mobile user station. The address is a combination of an identifier of the mobile user station and an identifier of a network node in the

communications system with which the mobile user station is currently associated. Second, another address is automatically reassigned to be associated with the one or more packets of the mobile user station when the station becomes associated with another network node of the communications system. The other address is a combination of the identifier of the mobile user station and an identifier of the other network node. A network node in the communications system is not required to obtain additional address information to direct a packet associated with a call to or from the mobile user station.

As a further example, as recited in claim 12, a method for use in a network node of a packet-based multiaccess communications system, the communications system including a plurality of mobile user stations, comprises the following steps. First, an address is assigned to the network node. The address is a combination of an identifier of the network node and an identifier of an interface associated with the network node. Second, packets are transferred to and from the network node in accordance with the address. The network node is able to move within the communications system in addition to the plurality of mobile user stations.

A diagram of a mobile communications system, according to an embodiment of the present invention, is shown in FIG. 1. This diagram illustrates mobile end users, network nodes, links and an internode network (Specification, page 9, line 13, through page 10, line 22). A diagram illustrating a network architecture of a mobile communications system, according to an embodiment of the present invention, is shown in FIG. 3A. This diagram illustrates components of the mobile end users and network nodes, which comprise, for example, a medium access control layer (Specification, page 11, line 9, through page 12, line 13). Flow charts illustrating mobile access methods, according to embodiments of the present invention, are shown in FIGS. 5A through 5C (Specification, page 23, line 1, through page 25, line 2).

ISSUES PRESENTED FOR REVIEW

1. Whether claims 1 and 6 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,371,897 to Brown et al. (hereinafter "Brown") in view of U.S. Patent No. 6,411,632 to Lindgren et al. (hereinafter "Lindgren").

2. Whether claims 12, 13, 16 and 17 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Brown in view of U.S. Patent No. 6,151,497 to Yee et al. (hereinafter "Yee").

3. Whether claims 14, 18 and 20 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Brown in view of Yee in further view of U.S. Patent No. 6,272,148 to Takagi et al. (hereinafter "Takagi").

4. Whether claims 3, 4, 8, 9 and 11 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Brown in view of Lindgren in further view of Takagi.

GROUPING OF CLAIMS

Claims 1, 3, 4, 6, 8, 9, 11-14, 16-18 and 20 do not stand or fall together. More particularly, claims 1, 3, 4, 6, 8, 9 and 11 stand or fall together, and claims 12-14, 16-18 and 20 stand or fall together.

ARGUMENT

Appellants incorporate by reference herein the disclosure of all previous responses filed in the present application, namely, responses dated April 5, 2002, November 19, 2002, and June 11, 2003.

Claims 1, 5, 6 and 10 were objected to in the final Office Action. Arguments traversing these objections were provided in the response to final Office Action which is incorporated by reference herein. Appellants preserve the right to petition the objections pending the outcome of the present Appeal.

Issue 1

With regard to the issue of whether claims 1 and 6 are properly rejected under 35 U.S.C. 103(a) as being unpatentable over Brown and Lindgren, the Office Action contends that Brown discloses all of the claim limitations recited in the subject claims except the automatic reassignment of another address to be associated with the packets of the mobile user station when the station becomes associated with another network node, which is allegedly taught by Lindgren. Appellants

- respectfully assert that the combination of Brown and Lindgren fails to establish a prima facie case of obviousness under 35 U.S.C. §103(a), as specified in M.P.E.P. §2143.

As set forth therein, M.P.E.P. §2143 states that three requirements must be met to establish a prima facie case of obviousness. First, there must be some suggestion or motivation to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited combination must teach or suggest all the claim limitations. While it is sufficient to show that a prima facie case of obviousness has not been established by showing that one of the requirements has not been met, Appellants respectfully believe that none of the requirements have been met.

First, there is a clear lack of motivation to combine the references. Appellants assert that no motivation or suggestion exists to combine Brown and Lindgren in a manner proposed by the Examiner, or to modify their teachings to meet the claim limitations. For at least this reason, a prima facie case of obviousness has not been established. Appellants strongly believe that one ordinarily skilled in the art would not look to Lindgren's network hub for interconnecting a wireless office environment with a public cellular telephone network to modify Brown's method for requesting identification of a neighboring node in a data processing input/output system, or vice versa. That is, the teachings in each reference are directed to completely different environments; one (Brown) toward a data processing I/O environment, the other (Lindgren) toward an interconnected wireless office/public cellular telephone environment. However, other than a very general and conclusory statement in the final Office Action, there is nothing in the two references that reasonably suggests why one would actually combine the teachings of these two references.

The Federal Circuit has stated that when patentability turns on the question of obviousness, the obviousness determination "must be based on objective evidence of record" and that "this precedent has been reinforced in myriad decisions, and cannot be dispensed with." *In re Lee*, 277 F.3d 1338, 1343 (Fed. Cir. 2002). Moreover, the Federal Circuit has stated that "conclusory statements" by an examiner fail to adequately address the factual question of motivation, which is material to patentability and cannot be resolved "on subjective belief and unknown authority." *Id.* at 1343-1344.

In the final Office Action at page 8, the Examiner provides the following statement to prove motivation to combine Brown and Lindgren, with emphasis supplied: "[i]t would have been obvious

- to one having ordinary skill in the art at the time the invention was made to provide . . . Lindgren et al. to the system of Brown et al. because Lindgren et al. teach [sic] the desirable added feature of wireless mobile communication in Brown et al.”

Appellants submit that this statement is based on the type of “subjective belief and unknown authority” that the Federal Circuit has indicated provides insufficient support for an obviousness rejection. More specifically, the Examiner fails to identify any objective evidence of record which supports the proposed combination.

Second, with respect to claims 1 and 6, Appellants assert that there is no reasonable expectation of success in achieving the present invention through a combination of Brown and Lindgren. For at least this reason, a prima facie case of obviousness has not been established. Despite the assertion in the final Office Action, Appellants do not believe that Brown and Lindgren are combinable since it is not clear how one would combine them. There is no guidance provided in the final Office Action. However, even if combined, for the sake of argument, they would not achieve the unique addressing techniques of the claimed invention.

Third, Appellants assert that even if combined, the Brown/Lindgren combination fails to teach or suggest all of the limitations of claims 1 and 6. For at least this reason, a prima facie case of obviousness has not been established.

The present invention as recited in independent claim 1, recites a method for use in a mobile user station of a packet-based multiaccess communications system, comprising the following steps: (i) assigning an address to be associated with one or more packets of the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated; and (ii) automatically reassigning another address to be associated with one or more packets of the mobile user station when the station becomes associated with another network node of the communications system, the other address being a combination of the identifier of the mobile user station and an identifier of the other network node; such that a network node in the communications system is not required to obtain additional address information to direct a packet associated with a call to or from the mobile user station. Independent claim 6 recites an apparatus-based aspect of the invention having similar limitations.

Brown discloses a method for requesting identification of a neighboring node in a data processing input/output system. Lindgren discloses a network hub for interconnecting a wireless office environment with a public cellular telephone network.

Regarding independent claims 1 and 6, the final Office Action cites column 12, line 54, to column 13, line 15 of Brown for support in rejecting (under the Brown/Lindgren combination) the step/operation of “assigning an address to be associated with one or more packets of the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated,” as recited in independent claims 1 and 6. However, Brown fails to disclose what the final Office Action asserts.

In particular, the final Office Action refers to a “Node ID” disclosed in Brown, at column 13, which includes a “self describing product (SDP) ID” and an “interface ID (tag).” However, claims 1 and 6 call for “the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated.” The node identifier is not the same as the address associated with packets of the user station. Additionally, the elements of the node identifier are not the same as the elements of the address associated with the packets. Further, Brown does not disclose an address having the mobile user station’s ID.

Next, the final Office Action cites column 5, line 56, to column 6, line 4 of Lindgren for support in rejecting (under the Brown/Lindgren combination) the step/operation of “automatically reassigning another address to be associated with one or more packets of the mobile user station when the station becomes associated with another network node of the communications system, the other address being a combination of the identifier of the mobile user station and an identifier of the other network node . . . such that a network node in the communications system is not required to obtain additional address information to direct a packet associated with a call to or from the mobile user station,” as recited in independent claims 1 and 6. Appellants believe that the final Office Action misinterprets the claimed feature.

By way of example, the present specification explains at page 29, lines 3-11:

It is to be appreciated that one of the advantages of the addressing scheme of the invention, described above, is that the SNLA [subnetwork layer address] itself indicates the relative location of a mobile. Therefore, if a mobile moves (i.e., attaches itself to a new network node) during a call, it automatically changes the source address to the new SNLA in its packets. Since the correspondent mobile can recognize the mobile from the mobile ID portion of the SNLA, it knows that the mobile has changed its location. Therefore, the correspondent mobile stamps the destination field of its packets with the new SNLA. Without extra signaling messages, mobile locations are updated during a call. Since the system 100 is a packet-switched network and each packet is routed directly to the destination, the route is optimized automatically as well. This feature reduces the amount of signaling traffic significantly since a majority of the traffic, such as TCP/IP connections and voice calls, are two-way traffic (Underlining added for emphasis).

Thus, in accordance with the claimed invention, the mobile user station performs the automatic reassigning step/operation. To the contrary, in Lindgren, an HLR 22 (home location register) informs a network hub 38 that a mobile is no longer registered with a "wireless office." The network hub 38 updates a translation table 70 and then notifies HLR 22. This is not necessary in the invention of claims 1 and 6, since the mobile itself is able to automatically reassign its address and thereby inform the communications system of its new address by transmitting packets with the reassigned address as the source address. In this manner, a network node in the communications system is therefore not required to obtain additional address information to direct a packet associated with a call to or from the mobile user station. This may further be facilitated by a correspondent mobile stamping the destination field of its packets with the new SNLA (address) reassigned by the source mobile. The proposed Brown/Lindgren combination fails to teach or suggest such a dynamic addressing scheme.

Accordingly, Appellants assert that claims 1 and 6 are patentable over the cited combination and therefore allowable. Withdrawal of the rejections is respectfully requested.

Issue 2

With regard to the issue of whether claims 12, 13, 16 and 17 are properly rejected under 35

U.S.C. §103(a) as being unpatentable over Brown in view of Yee, the Office Action contends that Brown discloses all of the claim limitations recited in the subject claims except the mobile user stations in the multiaccess communications system including the network node being able to move within the system in addition to the mobile user stations, which is allegedly taught by Yee. Appellants respectfully assert that the combination of Brown and Yee fails to establish a prima facie case of obviousness under 35 U.S.C. §103(a), as specified in M.P.E.P. §2143.

First, there is a clear lack of motivation to combine the references. Appellants assert that no motivation or suggestion exists to combine Brown and Yee in a manner proposed by the Examiner, or to modify their teachings to meet the claim limitations. For at least this reason, a prima facie case of obviousness has not been established. Appellants strongly believe that one ordinarily skilled in the art would not look to Yee's satellite based high bandwidth data broadcast system to modify Brown's method for requesting identification of a neighboring node in a data processing input/output system, or vice versa. That is, the teachings in each reference are directed to completely different environments; one (Brown) toward a data processing I/O environment, the other (Yee) toward a satellite based broadcast environment. Again, other than a very general and conclusory statement in the final Office Action, there is nothing in the two references that reasonably suggests why one would actually combine the teachings of these two references.

In the final Office Action at page 6, the Examiner provides the following statement to prove motivation to combine Brown and Yee, with emphasis supplied: “[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to provide . . . Yee et al. to the system of Brown et al. because Yee et al. teach [sic] the desirable added feature of satellite based communication and said satellite based communication being desirable to achieve the added feature of wireless mobile communication in Brown et al.”

Again, Appellants submit that this statement is based on the type of “subjective belief and unknown authority” that the Federal Circuit, in the above-cited In re Lee, has indicated provides insufficient support for an obviousness rejection. Again, the Examiner fails to identify any objective evidence of record which supports the proposed combination.

Second, with respect to claims 12, 13, 16 and 17, Appellants assert that there is no reasonable expectation of success in achieving the present invention through a combination of Brown and Yee.

For at least this reason, a prima facie case of obviousness has not been established. Despite the assertion in the final Office Action, Appellants do not believe that Brown and Yee are combinable since it is not clear how one would combine them. There is no guidance provided in the final Office Action. However, even if combined, for the sake of argument, they would not achieve the unique addressing techniques of the claimed invention.

Third, Appellants assert that even if combined, the Brown/Yee combination fails to teach or suggest all of the limitations of claims 12, 13, 16 and 17. For at least this reason, a prima facie case of obviousness has not been established.

The present invention as recited in independent claim 12, recites a method for use in a network node of a packet-based multiaccess communications system, the communications system including a plurality of mobile user stations, comprising the following steps: (i) assigning an address to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node; and (ii) transferring packets to and from the network node in accordance with the address, such that the network node is able to move within the communications system in addition to the plurality of mobile user stations. Independent claim 16 recites an apparatus-based aspect of the invention having similar limitations. Claims 13 and 17 are directly dependent on claims 12 and 16, respectively.

Brown discloses a method for requesting identification of a neighboring node in a data processing input/output system. Yee discloses a satellite based high bandwidth data broadcast system.

Regarding independent claims 12 and 16, the final Office Action again cites column 12, line 54, to column 13, line 15 of Brown for support in rejecting (under the Brown/Yee combination) the step/operation of “assigning an address to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node,” as recited in independent claims 12 and 16. However, Brown fails to disclose what the final Office Action asserts. Appellants assert that the “Node ID” disclosed in Brown fails to teach or suggest the form of the address of a network node in claims 12 and 16.

Next, the final Office Action cites column 1, line 24, to column 2, line 8 of Yee for support in rejecting (under the Brown/Yee combination) the step/operation of “transferring packets to and

from the network node in accordance with the address, such that the network node is able to move within the communications system in addition to the plurality of mobile user stations,” as recited in independent claims 12 and 16. However, Yee fails to disclose what the final Office Action asserts.

As mentioned above, Yee is directed toward a satellite based data broadcast system wherein, as explained at column 2, lines 23-31, ground based service providers broadcast high bandwidth data information to mobile users. Based on the nature of the satellite broadcast environment, it cannot be said that data is transferred in accordance with an addressing scheme “such that the network node is able to move within the communications system in addition to the plurality of mobile user stations,” as in the claimed invention. An addressing scheme, as in the claimed invention, is not used in a broadcast environment since, in a broadcast environment, data is broadcast to all subscribers, and “collected” by a subscriber based on access authorization criterion, see column 3, lines 23-41 of Yee. This is significantly different than the packet based multi-access communications system of the claimed invention.

Further, column 2, lines 23-31, of Yee describes the difficulty in maintaining a network communication when a user is mobile. While Yee refers to a node that is mobile, this node is actually a mobile user station. This section of the background of Yee describes a mobile user moving out of range of a “ground based communication system.” Thus, such nodes and user stations are not separate elements in the background of Yee. In the present invention network nodes refer to system access points and not mobile user stations.

Accordingly, Appellants assert that claims 12 and 16 are patentable over the cited combination and therefore allowable. It is also asserted that dependent claims 13 and 17 are patentable over the cited combination due, at least, to their respective dependence on independent claims 12 and 16 and the reasons given above. Withdrawal of the rejections is respectfully requested.

Issues 3 and 4

With regard to the issues of whether claims 14, 18 and 20 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over Brown in view of Yee in further view of Takagi, and whether claims 3, 4, 8, 9 and 11 are properly rejected under 35 U.S.C. §103(a) as being unpatentable

over Brown in view of Lindgren in further view of Takagi, Appellants respectfully assert that both the Brown/Yee/Takagi combination and the Brown/Lindgren/Takagi combination fail to establish prima facie cases of obviousness under 35 U.S.C. §103(a), as specified in M.P.E.P. §2143.

Since there is no reasonable justification for why Takagi is combinable with the other references (in accordance with In re Lee) or how Takagi could be combined with the other references, it is believed that said dependent claims are patentable over the cited combinations. Further, since Takagi fails to remedy the deficiencies in Brown/Yee and Brown/Lindgren, as presented above, dependent claims 3, 4, 8, 9, 11, 14, 18 and 20 are asserted to be patentable over the cited combinations due, at least, to their respective dependence on independent claims 1, 6, 12 and 16 and the reasons given above.

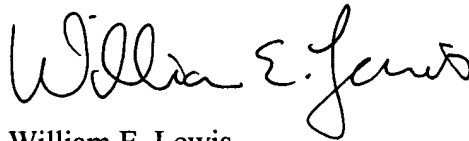
In addition, it is asserted that dependent claims 3, 4, 8, 9, 11, 14, 18 and 20 recite patentable subject matter in their own right. By way of example, dependent claims 3 and 8 recite a limitation wherein the identifier of the mobile user station is a medium access control address of the station. The Office Action contends that this limitation is disclosed in column 27, lines 35-45 of Takagi. However, while Takagi describes the multicast transmission of an IP datagram by frames having a multicast destination MAC address, it does not disclose the use of a MAC address of a mobile user station as the address of the station.

Additionally, dependent claims 4 and 9 recite a limitation wherein the identifier of the mobile user station includes an application flow identifier. The Office Action contends that this limitation is disclosed in column 13, line 56 through column 14, line 15, of Takagi. However, while Takagi describes a flow ID registered in a relay method table, it does not disclose the use of an application flow identifier in the address of a mobile user station. Additionally, this portion of Takagi also fails to disclose the use of an application flow identifier in the address of a network node, as recited in claims 14 and 18 of the present invention.

Finally, claim 11 recites a mobile user station configured for supporting a protocol layer. The protocol layer is located above a MAC layer in a protocol stack associated with the communications system. The protocol layer provides support to applications associated with the communications system with respect to the mobility of the user station. Claim 20 recites a network node configured in the same manner. The elements of these claims are not disclosed in Takagi.

For at least the reasons given above, Appellants respectfully request withdrawal of the 103(a) rejections of claims 1, 3, 4, 6, 8, 9, 11-14, 16-18 and 20. Appellants believe that claims 1, 3, 4, 6, 8, 9, 11-14, 16-18 and 20 are patentable over the various combinations of Brown, Lindgren, Yee and Takagi. As such, the application is asserted to be in condition for allowance, and favorable action is respectfully solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "William E. Lewis". The signature is fluid and cursive, with the first name "William" being the most prominent part.

Date: August 13, 2003

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APPENDIX

1. A method for use in a mobile user station of a packet-based multiaccess communications system, comprising the steps of:

assigning an address to be associated with one or more packets of the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated; and

automatically reassigning another address to be associated with one or more packets of the mobile user station when the station becomes associated with another network node of the communications system, the other address being a combination of the identifier of the mobile user station and an identifier of the other network node;

such that a network node in the communications system is not required to obtain additional address information to direct a packet associated with a call to or from the mobile user station.

3. The method of Claim 1, wherein the identifier of the mobile user station is a medium access control address of the station.

4. The method of Claim 1, wherein the address of the mobile user station further includes an application flow identifier.

6. Apparatus in a packet-based multiaccess communications system, comprising:

a mobile user station configured to assign an address to be associated with one or more packets of the mobile user station, the address being a combination of an identifier of the mobile user station and an identifier of a network node in the communications system with which the mobile user station is currently associated, the mobile user station automatically reassigning another address to be associated with one or more packets of the mobile user station when the station becomes associated with another network node of the communications system, the other address being a combination of the identifier of the mobile user station and an identifier of the other network node,

such that a network node in the communications system is not required to obtain additional address information to direct a packet associated with a call to or from the mobile user station.

8. The apparatus of Claim 6, wherein the identifier of the mobile user station is a medium access control address of the station.

9. The apparatus of Claim 6, wherein the address of the mobile user station further includes an application flow identifier.

11. The apparatus of Claim 6, wherein the mobile user station is further configured for supporting a protocol layer, the protocol layer being located above a medium access control layer in a protocol stack associated with the communications system and providing support to applications associated with the communications system with respect to the mobility of the user station.

12. A method for use in a network node of a packet-based multiaccess communications system, the communications system including a plurality of mobile user stations, comprising the steps of:

assigning an address to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node; and

transferring packets to and from the network node in accordance with the address, such that the network node is able to move within the communications system in addition to the plurality of mobile user stations.

13. The method of Claim 12, wherein the interface identifier is a data link address.

14. The method of Claim 12, wherein the address of the network node further includes an application flow identifier.

16. Apparatus in a packet-based multiaccess communications system, the communications system including a plurality of mobile user stations, comprising:

a network node configured to respond to an address assigned to the network node, the address being a combination of an identifier of the network node and an identifier of an interface associated with the network node such that packets are transferred to and from the network node in accordance with the address, and the network node is able to move within the communications system in addition to the plurality of mobile user stations.

17. The apparatus of Claim 16, wherein the interface identifier is a data link address.

18. The apparatus of Claim 16, wherein the address of the network node further includes an application flow identifier.

20. The apparatus of Claim 16, wherein the network node is further configured for supporting a protocol layer, the protocol layer being located above a medium access control layer in a protocol stack associated with the communications system and providing support to applications associated with the communications system with respect to mobility of a user station.